FINALLY! GOES - 16

W.F. Denig

National Oceanic and Atmospheric Administration (NOAA)

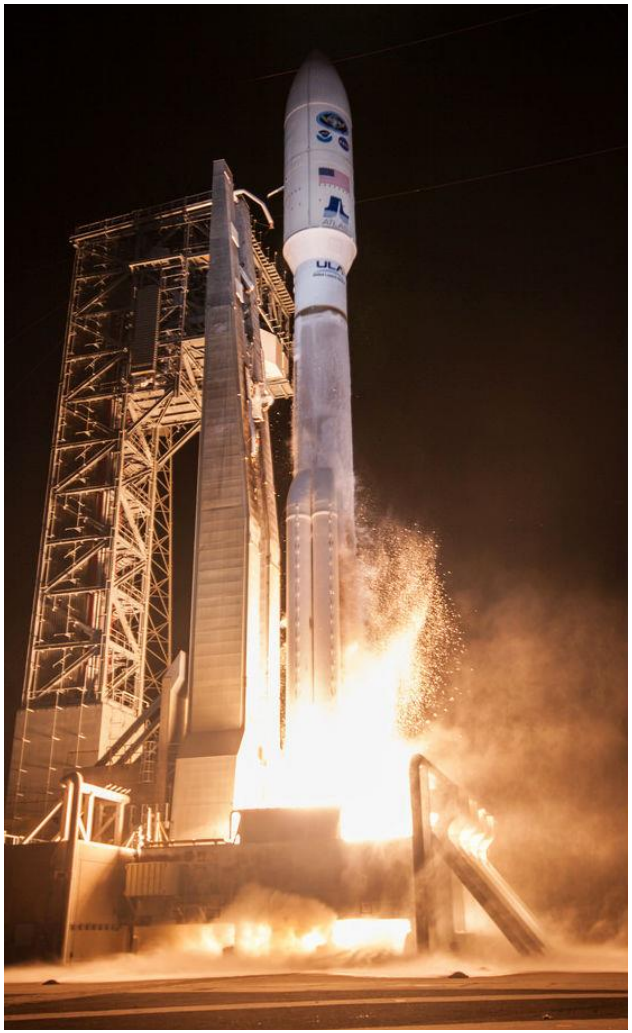
National Environmental Satellite, Data & Information Service (NESDIS)

Boulder, Colorado

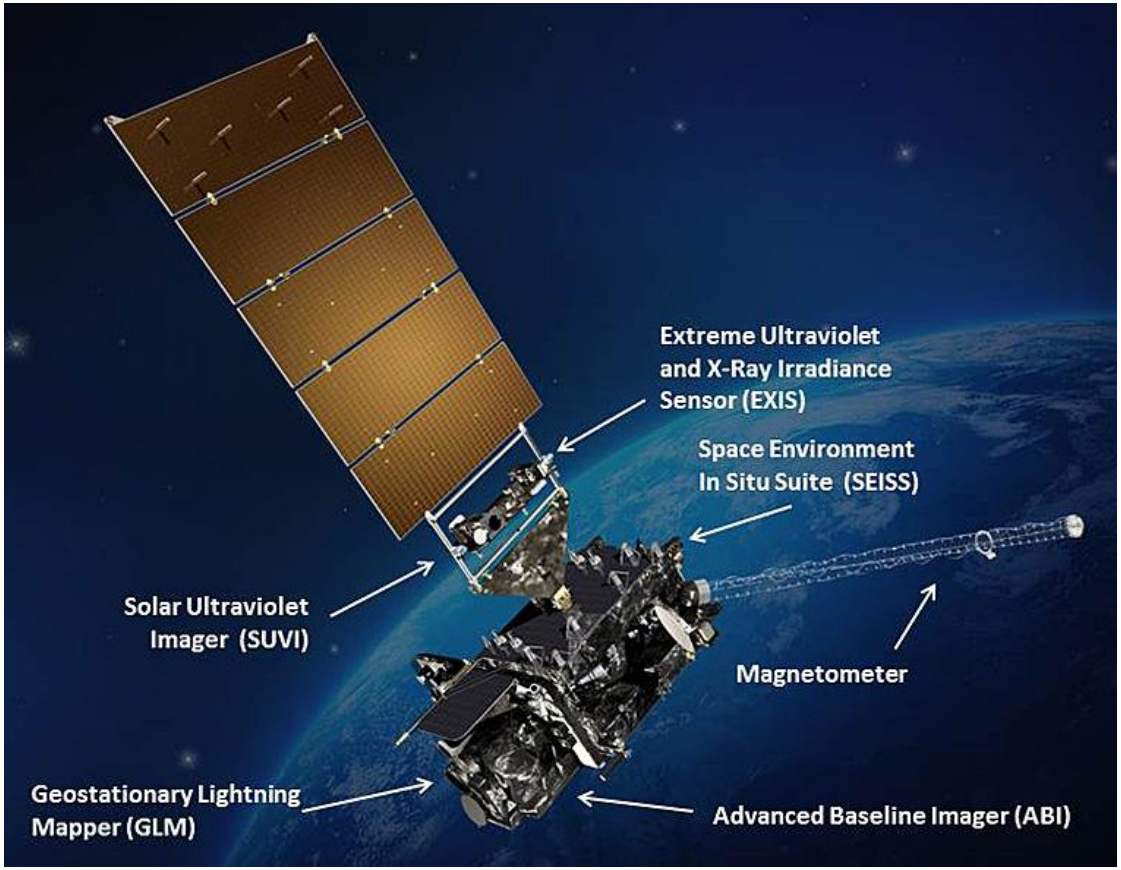
05 May 2017

GOES-16

Satellite Launch: 19 November 2016

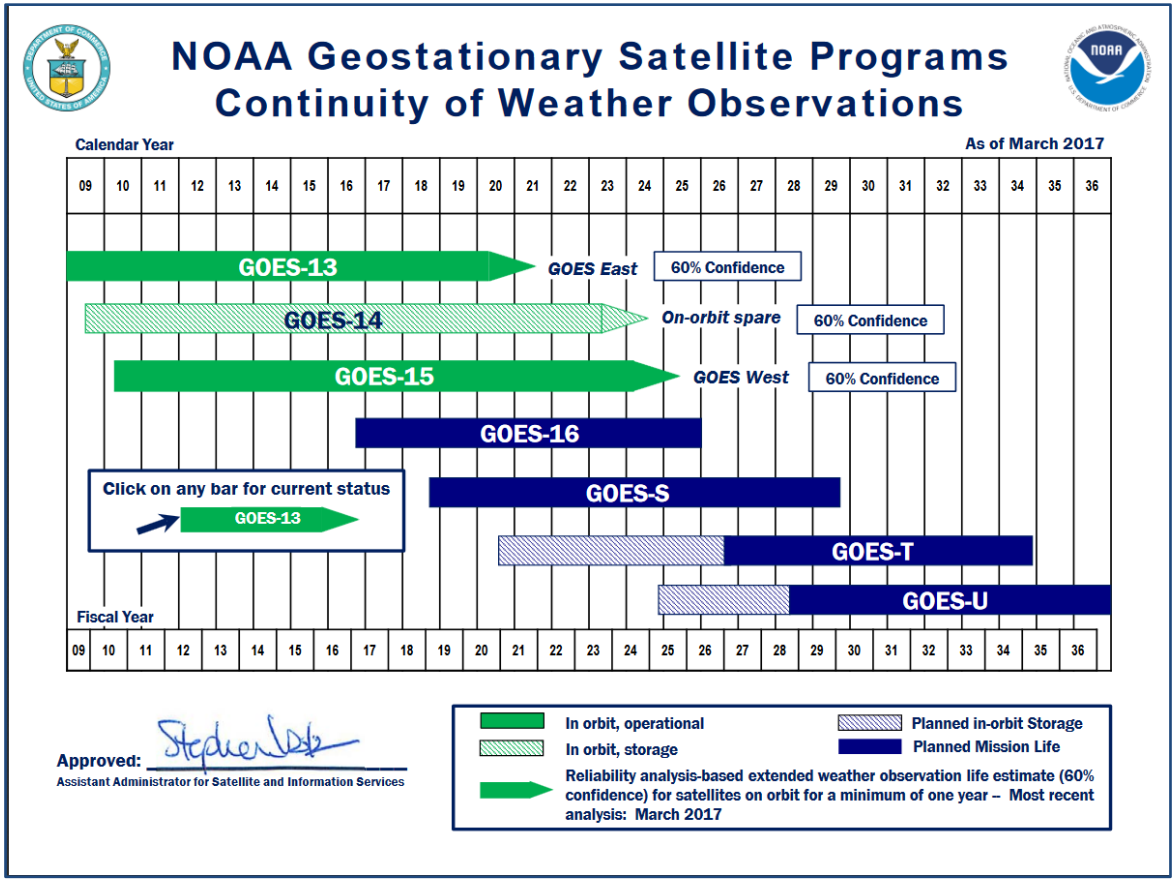


4 of 6 Sensors are for Space Weather



NOAA Flyout Chart
Operations Through 2036

GOES-16 is the first of the GOES-R satellites



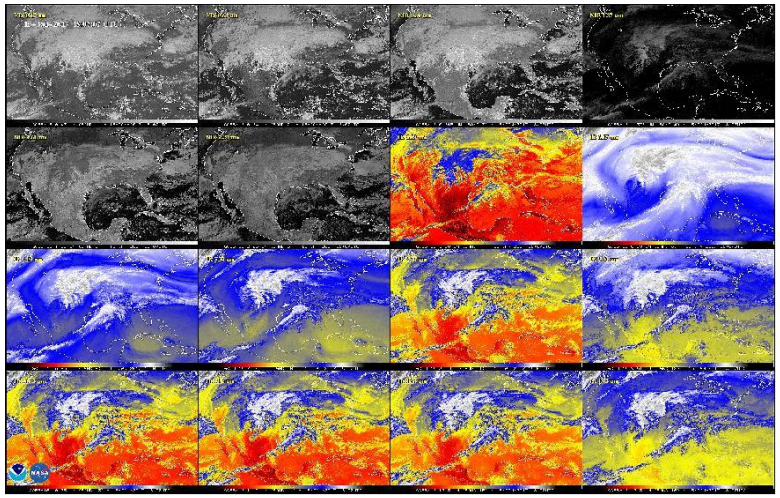
Advanced Baseline Imager (ABI)

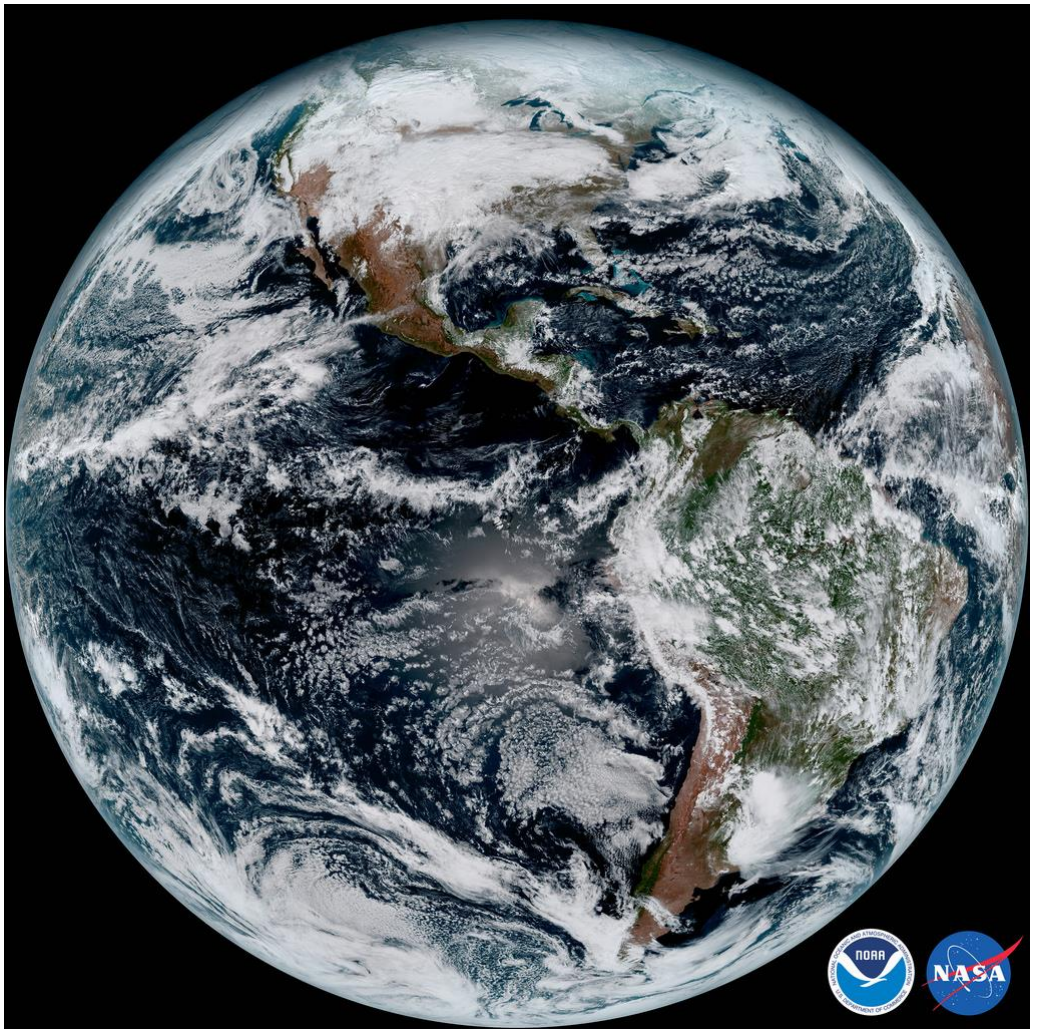
Key Performance Parameters

5 x Faster coverage (5-minute full disk vs. 25-minute)

4 x Improved spatial resolution (2 km IR vs. 4 km)

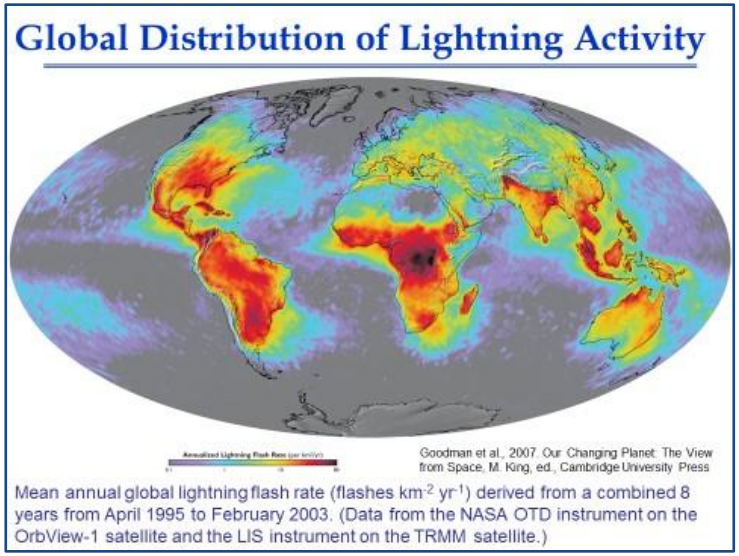
3 x More spectral bands (16 on ABI vs. 5 on the current imager)

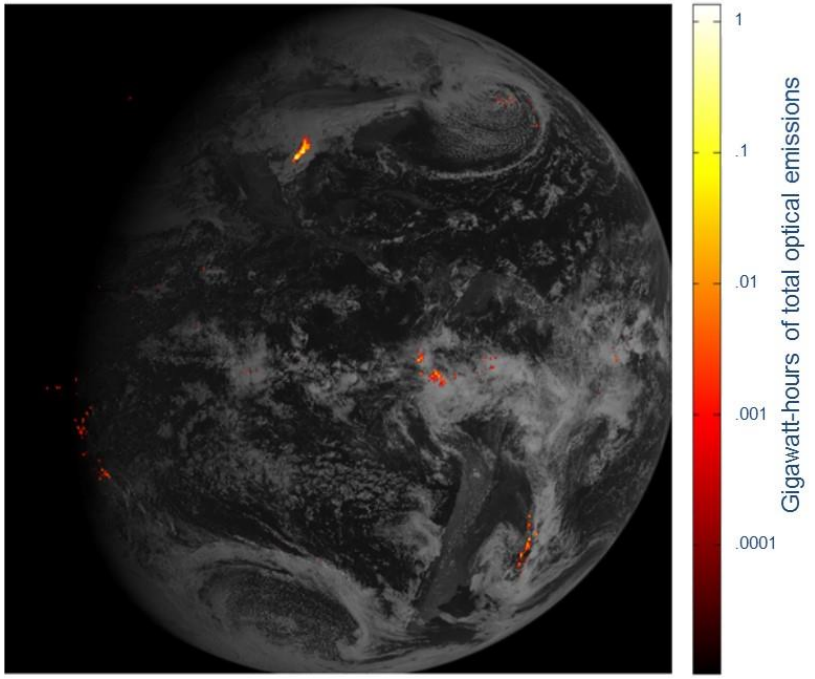


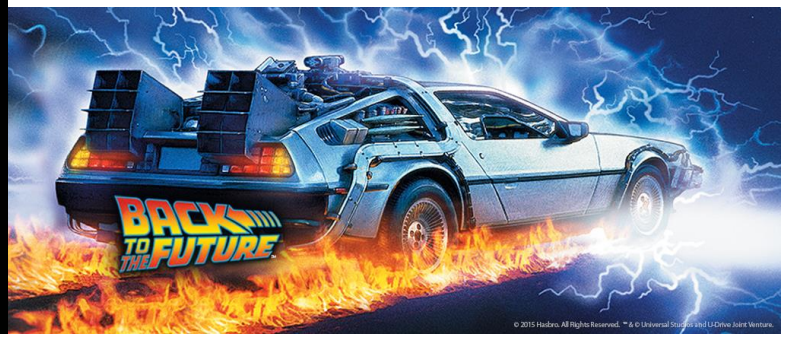


Global Lightning Mapper (GLM)

New Operational Capability at GEO





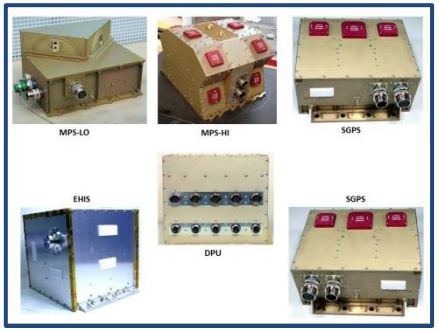


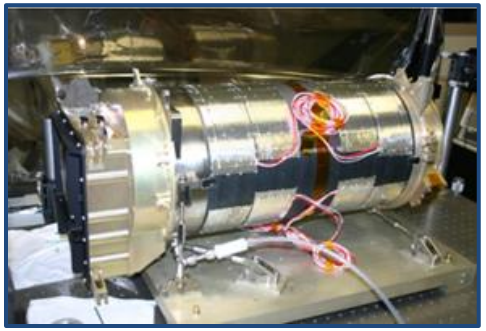
Space Weather Sensors
Heritage & New Capabilities

GOES-16

Space Environmental In-Situ Suite

(SEISS)



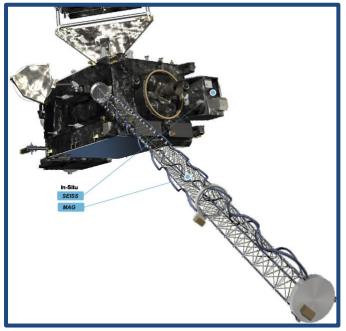


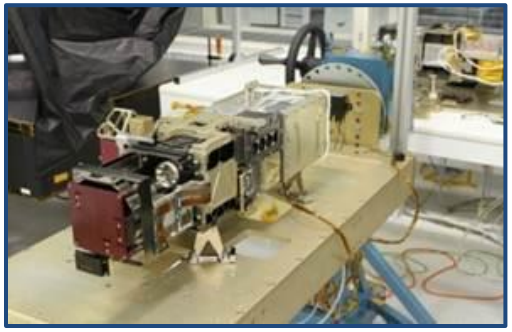
Solar Ultra-Violet Imager

(SUVI)

Magnetometer

MAG



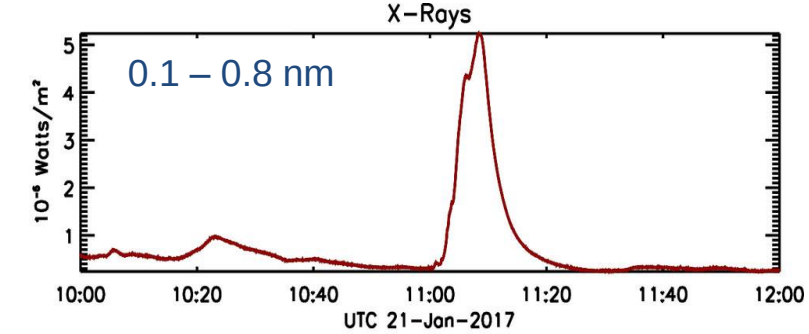


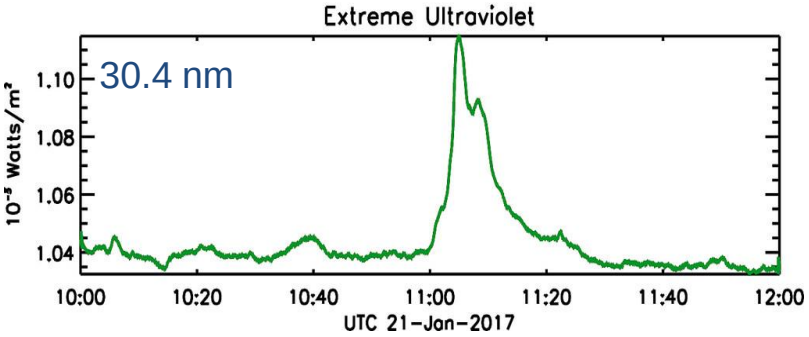
EUV and X-ray Irradiance Sensors

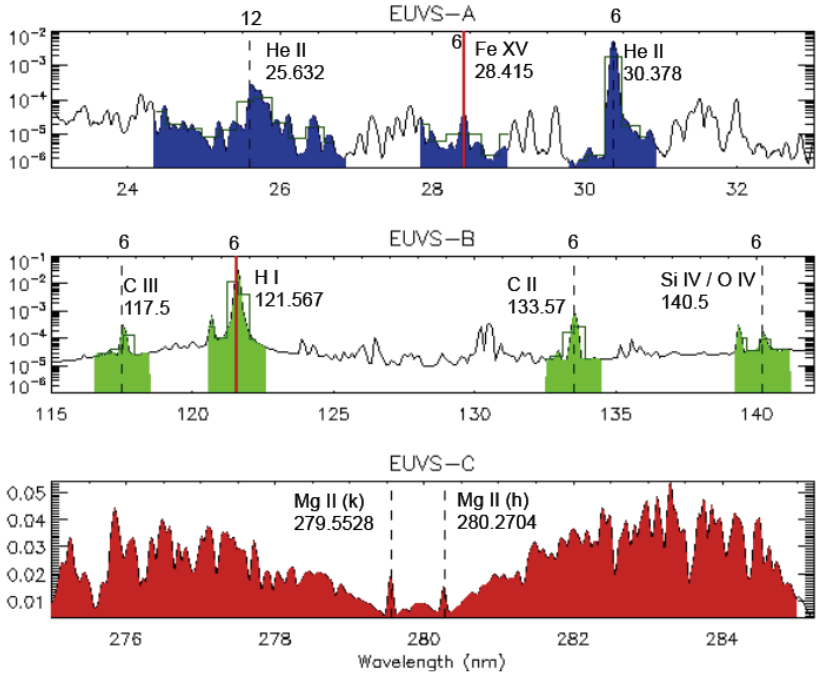
(EXIS XRS & EUVS)

EXIS First Public Data Release

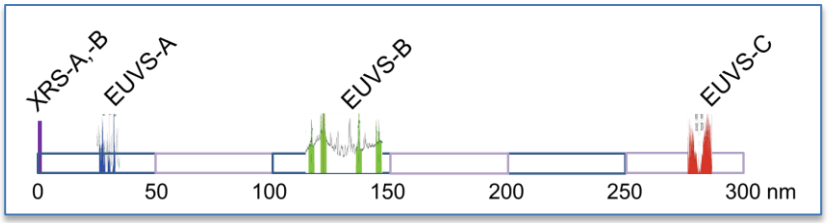
03-Feb-2017





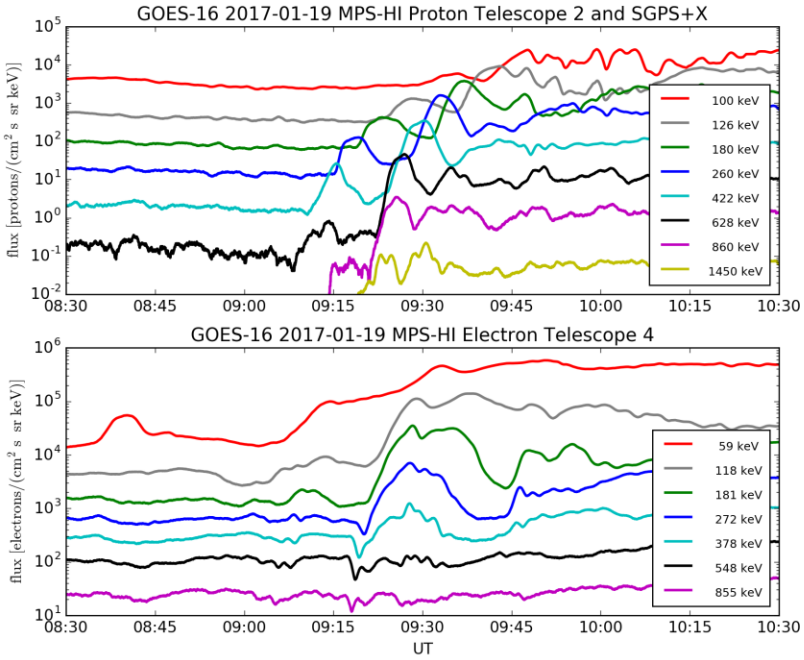


- Solar irradiance in X-rays and EUV
- Instrument Scientist: Janet Machol / NCEI
- Domain Scientist: Rodney Viereck / SWPC
- Built by CU/LASP
- Principal Investigator: Frank Eparvier



SEISS First Public Data Release

10-Feb-2017



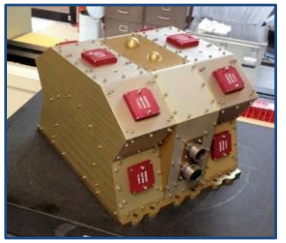
- Instrument Scientist: Brian Kress / NCEI
- Domain Scientist: Terry Onsager / SWPC
- Support: Juan Rodriguez / NCEI
  Thanasis Boudouridis / NCEI
- By Assurance Technology Corp (Carlisle, MA)

Magnetospheric Particle Sensor – Low Energy (MPS-LO)

ions$^+$	30 eV – 30 keV
e$^-$	30 eV – 30 keV

Magnetospheric Particle Sensor – High Energy (MPS-HI)

p$^+$	80 keV – 10 MeV
e$^-$	50 keV – 4 MeV; > 2 MeV

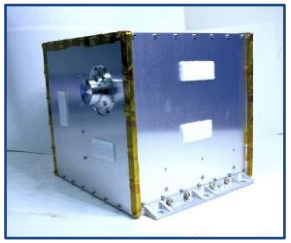


Solar & Galactic Proton Sensor (SGPS)

p$^+$	1 – 500 MeV; >500 MeV
α^+	4 – 500 MeV

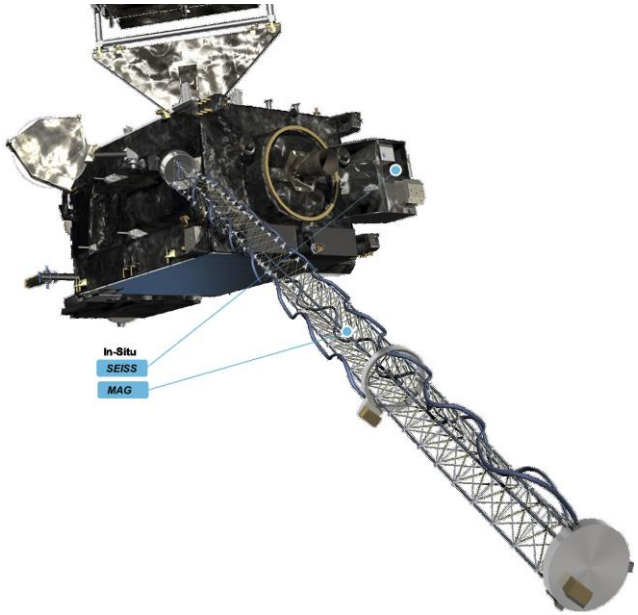
Energetic Heavy Ion Sensor (EHIS)

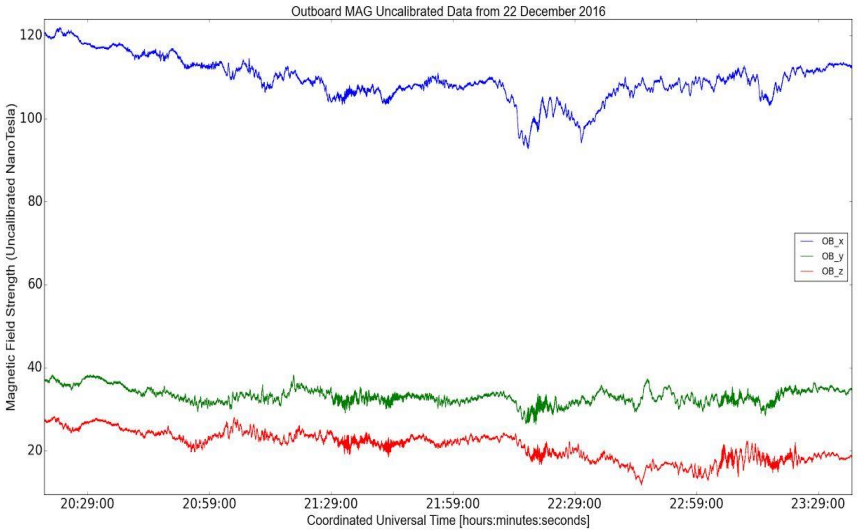
Ions$^+$	10 – 200 MeV/nucleon
Specie$^+$	H, He, Z 4-29



MAG First Public Data Release

04-Feb-2017

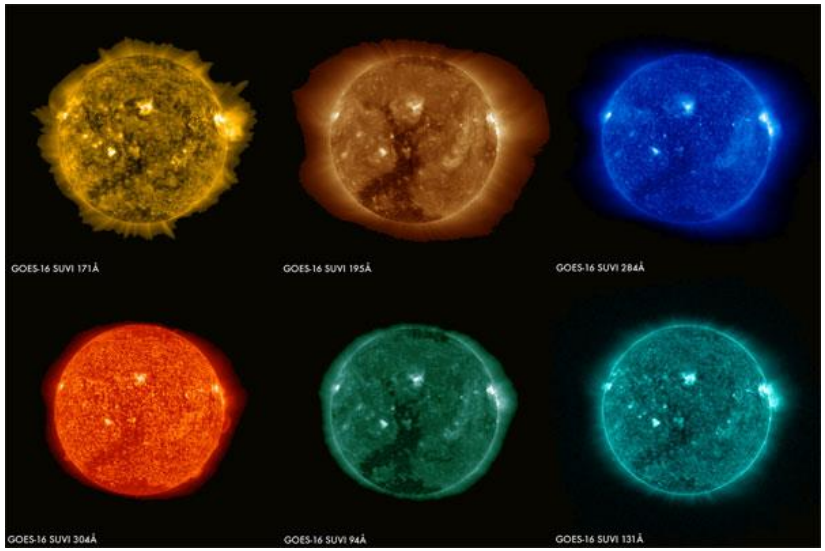




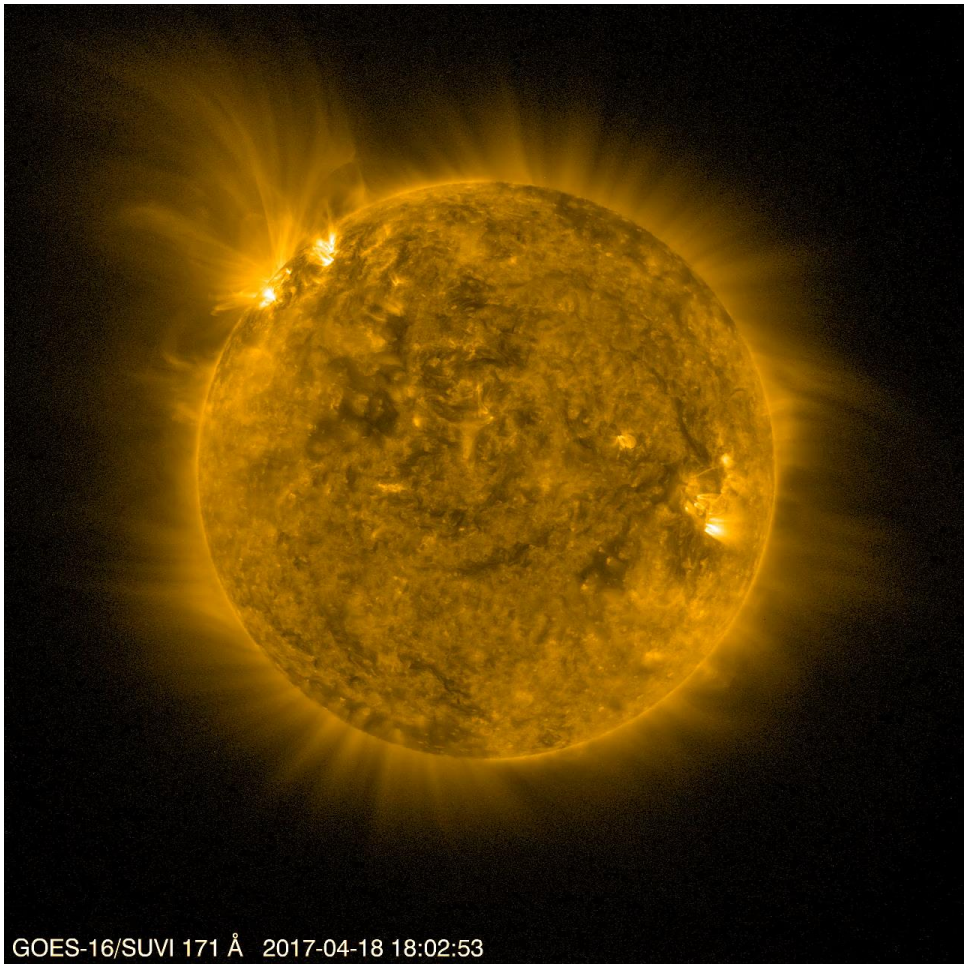
- Tri-axial Fluxgate Magnetometer
- Instrument Scientist: Paul Loto'aniu / NCEI
- Domain Scientist: Howard Singer / SWPC
- Support: Rob Redmon / NCEI
  Sam Califf / NCEI
- Provider: Lockheed Martin (Littleton, CO)

SUVI First Public Data Release

27-Feb-2017

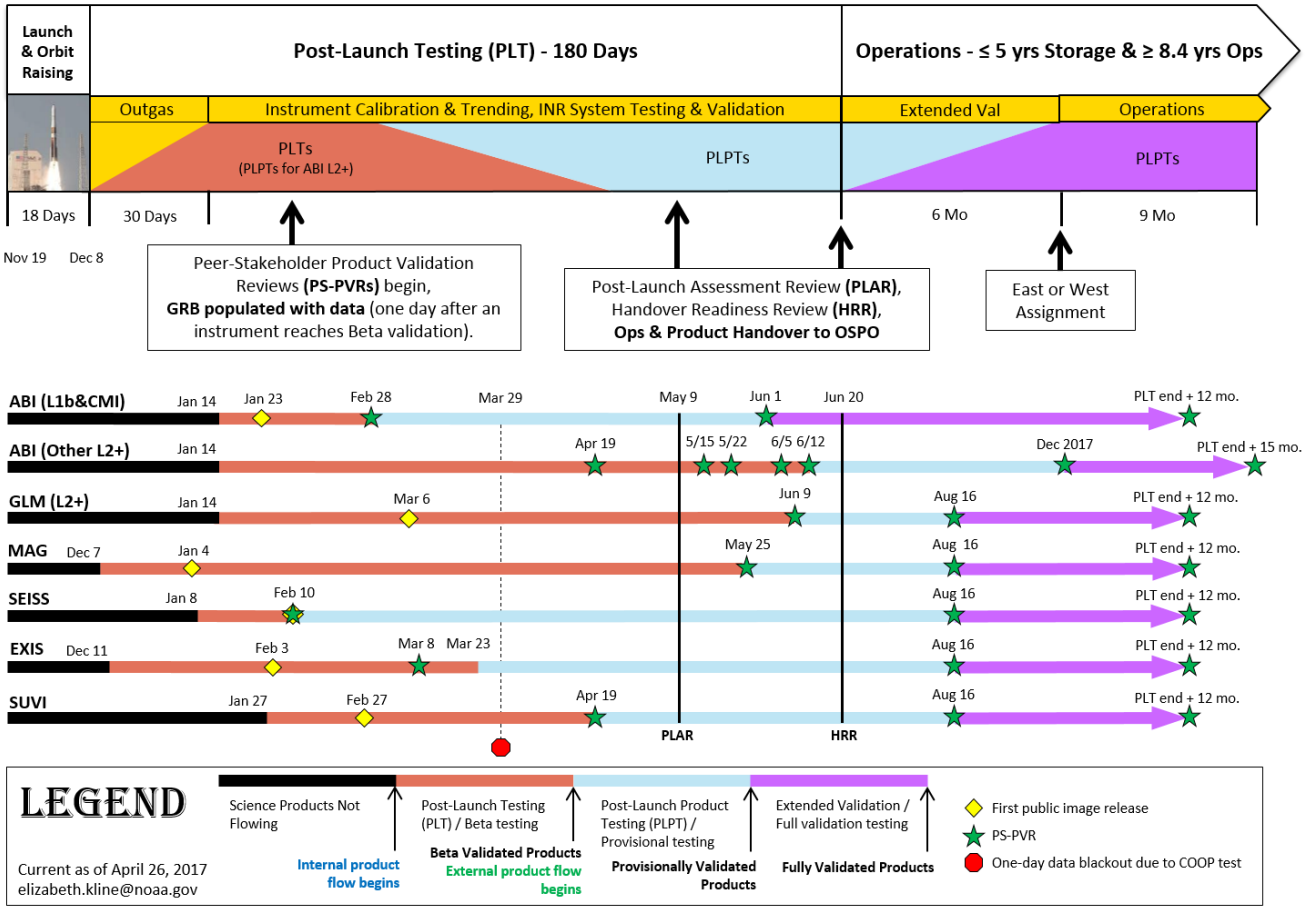


- Similar in design to the SDO AIA
- Instrument Scientist: Jon Darnel / NCEI
- Domain Scientist: Steve Hill / SWPC
- Support: Dan Seaton / NCEI
  Larisza Krista / NCEI
- Built by LM-ATC (Palo Alto, CA)



Path to Operations
Current Post-Launch Testing

GOES-16 Post-Launch Science Product Validation Schedule



Note: All dates are coordinated with the Flight/MOST PLT SOE group and the T&H team and are subject to change.

Data Availability (L1b Products)

August 2017

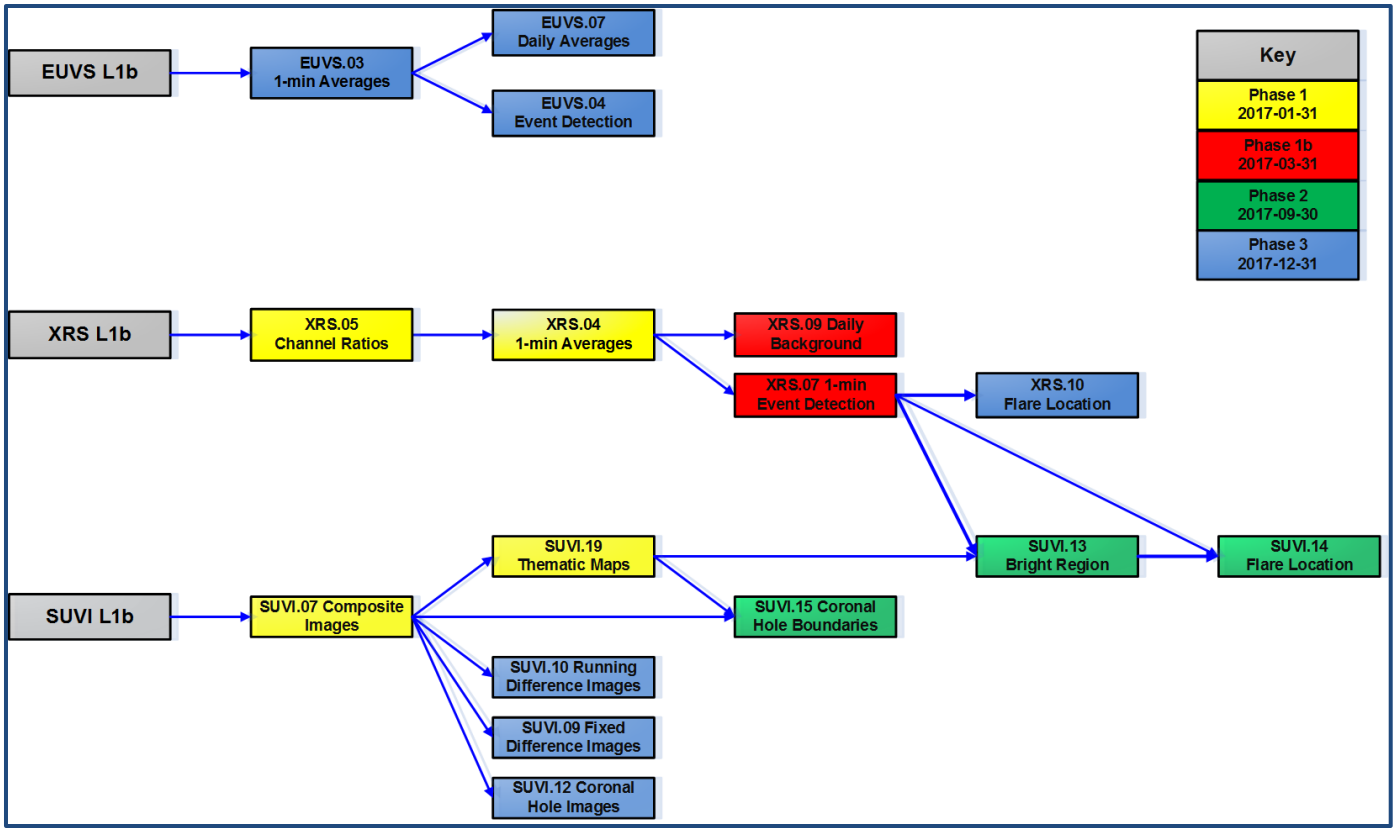
Instrument	Product	Product Description
EXIS	EUVS	Modeled solar irradiance spectra covering the wavelength range from 5 to 127 nm at a 30-sec. cadence. Also, the Mg II index and 7 individual EUV line measurement.
	XRS	Soft x-ray flux measurements at the traditional 2 XRS band passes at one-second cadence.
MAG	MAG	The 10 Hz estimated ambient magnetic field in four coordinate reference frames.
SEISS	EHIS	Five-minute fluxes of 10-200 MeV/nucleon heavy ions (Z=1,2,4-29) derived from in situ measurements of heavy ion count rates, in one look direction.
	MPS-LO	One-sec. fluxes of low energy (30 eV - 30keV) electrons and ions derived from in situ measurements of electron and ion count rates, in 14 look directions.
	MPS-HI	One-sec. fluxes of medium and high energy (50 keV - 4 MeV) electrons and (80 keV - 10 MeV) protons derived from in situ measurements of electron and proton count rates, in 5 look directions.
	SGPS	One-sec. fluxes of high energy (1 MeV - >500 MeV) protons derived from in situ measurements of proton count rates, in one look direction (two SGPS per satellite).
SUVI	SUVI	Solar images at six wavelengths and multiple radiance level ranges in support of viewing the sun during different types of solar activity. Image exposures are 10 msec or one sec.

Available via NCEI-CO and CLASS

(SWW Poster by Meg Tilton)

Data Availability L2+ Products

After CY2017

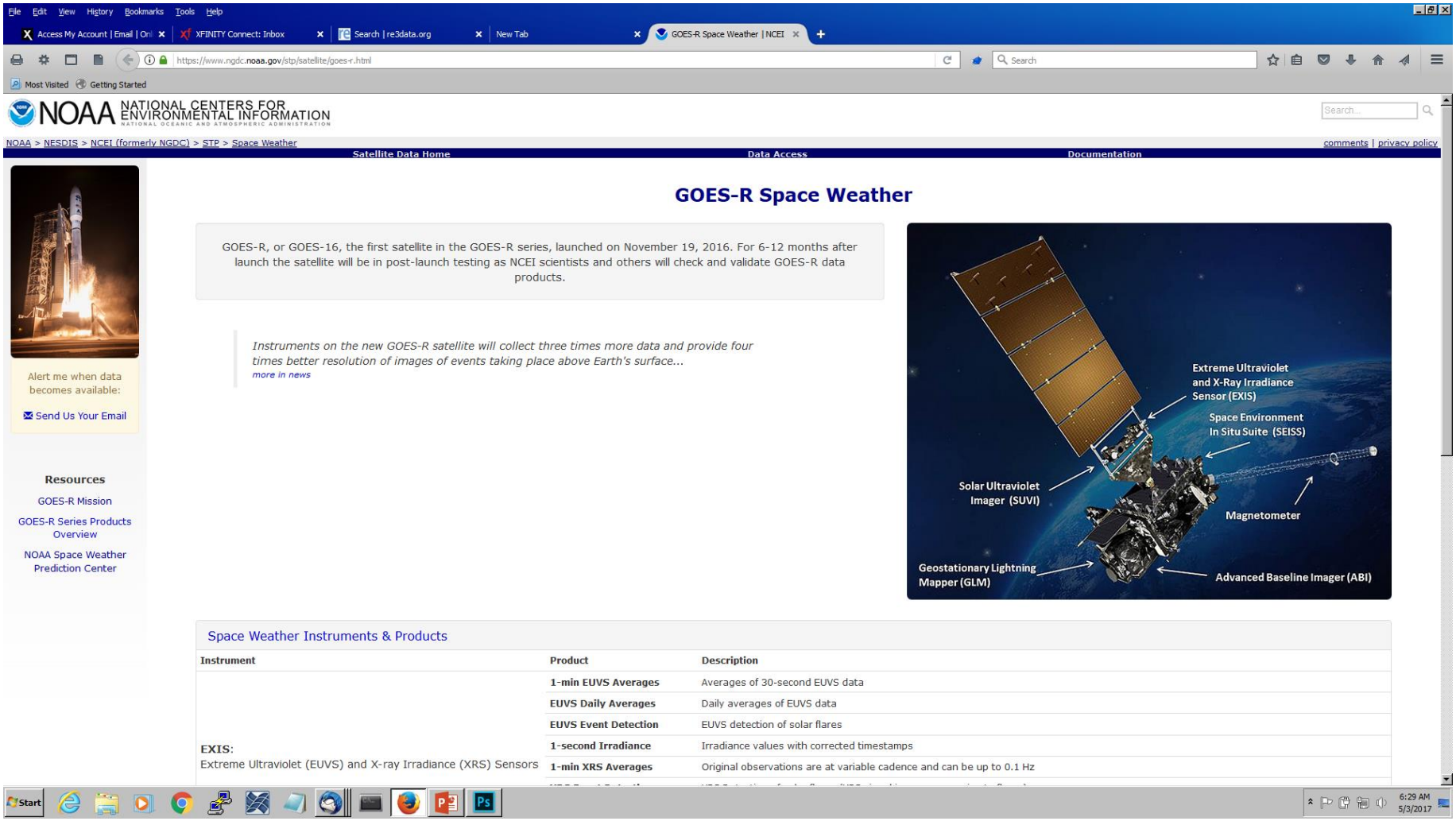


Real-time Data Available via NWS/SWPC

(SEISS and MAG L2+ Products Not Shown)

Data Access

https://www.ngdc.noaa.gov/stp/satellite/goes-r.html



NCEI Points of Contact (POCs)

First.Last@noaa.gov

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William.Rowland	Systems Engineer	Margaret.Tilton	Data Manager
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Brian.Kress	SEISS Instrument Scientist	Paul.Lotoaniu	MAG Instrument Scientist
Juan.Rodriguez	SEISS Support	Athanasios.Boudouridis	SEISS Support
Daniel.Seaton	SUVI Support	Sam.Califf	MAG Support
Abram.Claycomb	S/W Support	Vicki.Hsu	S/W Support
Stefan.Codrescu	S/W Support	Larizsa.Krisa	SUVI Support

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